

(No Model.)

2 Sheets—Sheet 1.

F. DEMING.  
TUBE DRAWING BENCH.

No. 495,610.

Patented Apr. 18, 1893.

Fig. 1.

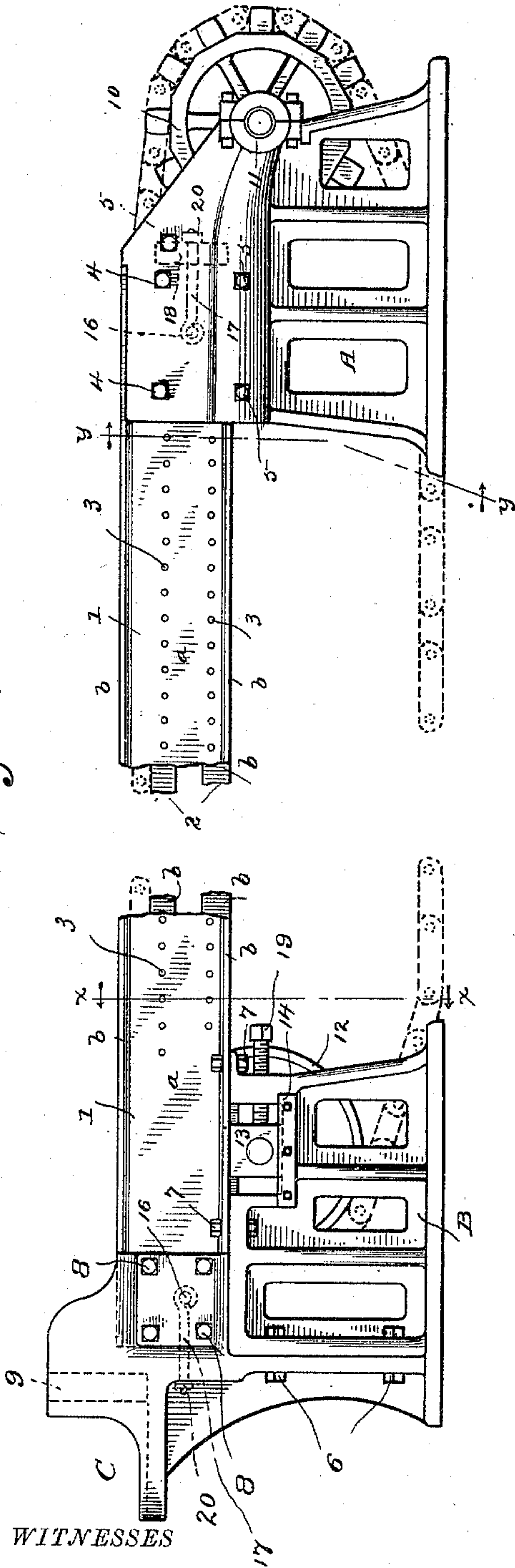
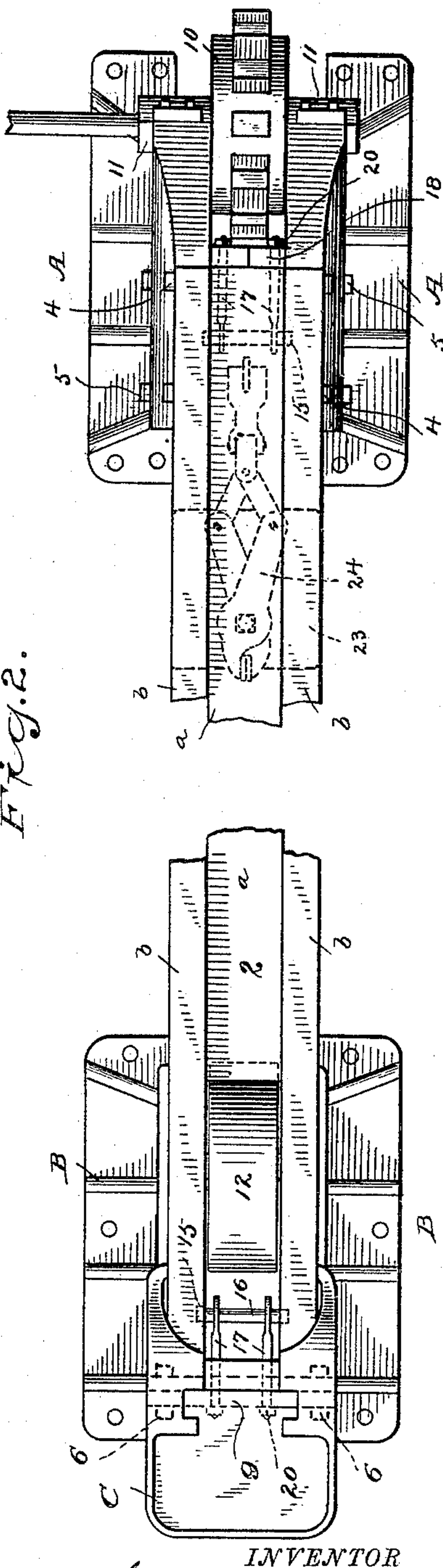


Fig. 2.



WITNESSES  
H. A. Lamb  
Pearl M. Reynolds

INVENTOR  
Ferdinand Deming  
By A. M. Wooster atty.

(No Model.)

2 Sheets—Sheet 2.

F. DEMING.  
TUBE DRAWING BENCH.

No. 495,610.

Patented Apr. 18, 1893.

Fig. 3.

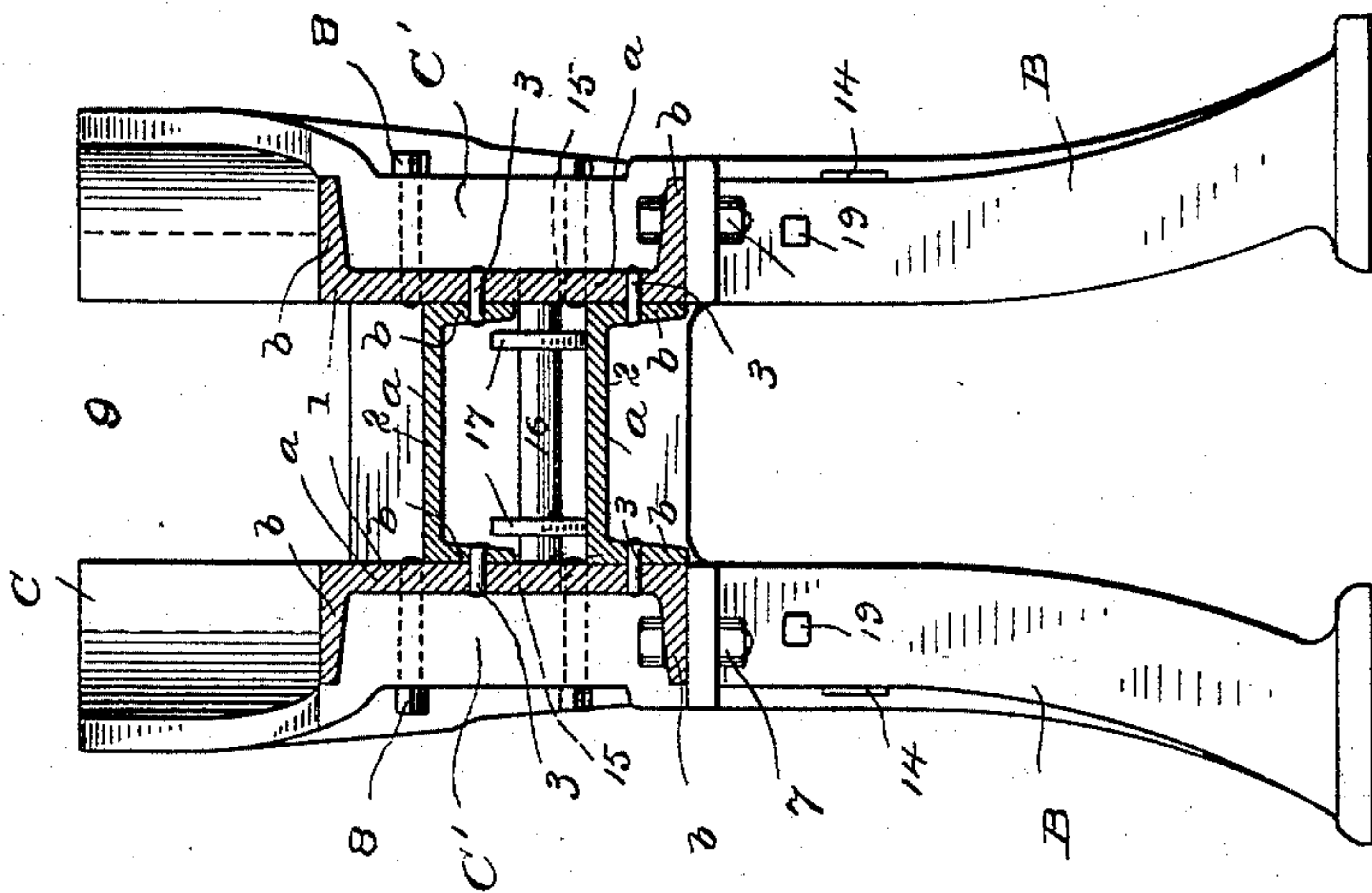


Fig. 5.

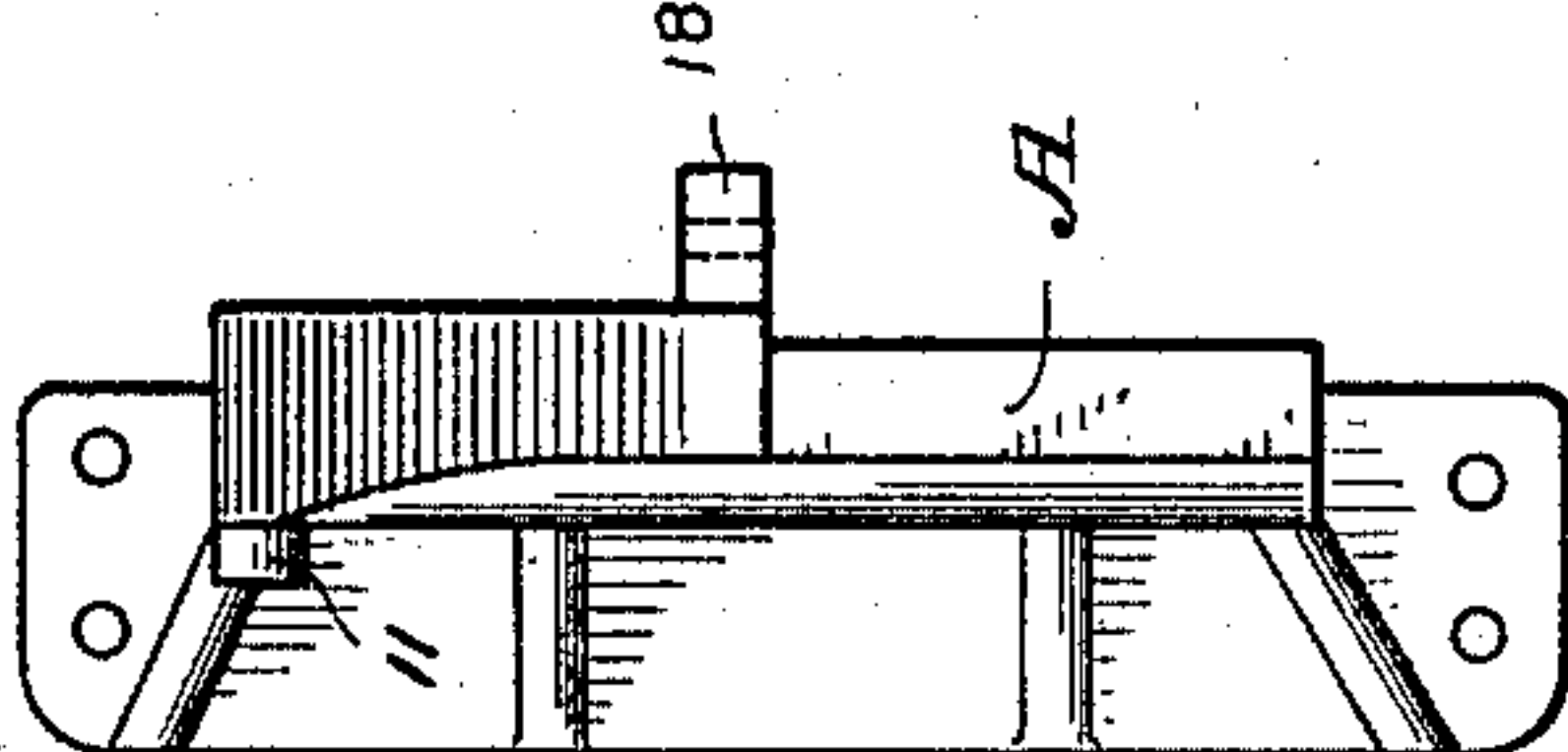


Fig. 4.

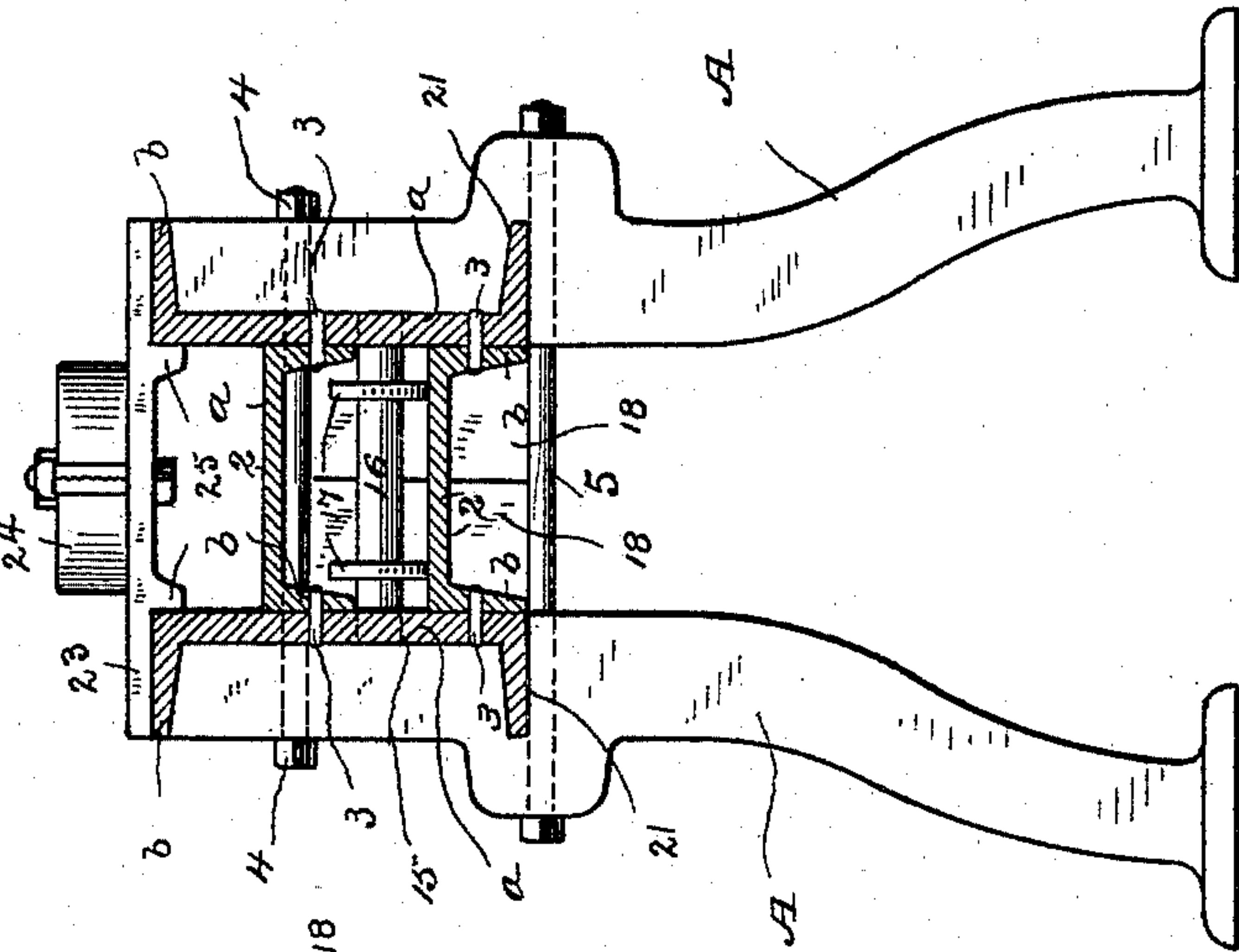
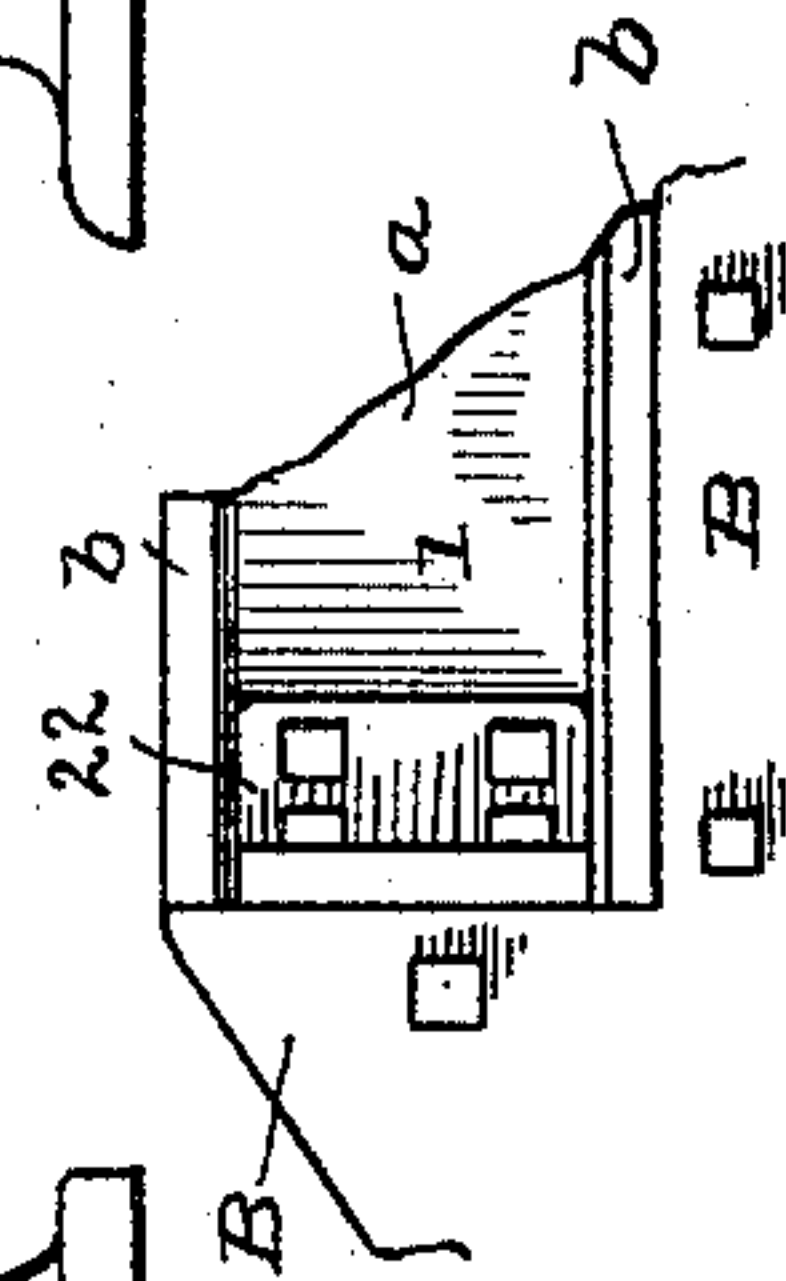


Fig. 6.



WITNESSES

H. A. Lamb  
Pearl M. Reynolds

INVENTOR

Ferdinand Deming  
By A. M. Wooster  
Att'y.



# UNITED STATES PATENT OFFICE.

FERDINAND DEMING, OF WATERBURY, CONNECTICUT, ASSIGNOR TO  
RANDOLPH & CLOWES, OF SAME PLACE.

## TUBE-DRAWING BENCH.

SPECIFICATION forming part of Letters Patent No. 495,610, dated April 18, 1893.

Application filed October 8, 1892. Serial No. 448,186. (No model.)

*To all whom it may concern:*

Be it known that I, FERDINAND DEMING, a citizen of the United States, residing at Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Tube-Drawing Benches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to drawing benches generally but more especially to heavy benches such as are used in drawing tubes, rods and moldings; and my invention has for its object to produce a bench of this class which shall be simple in construction, economical in cost, attractive in design, firm and strong and capable of standing the strain of use for an almost unlimited length of time. Heretofore drawing benches of this class have ordinarily been made of wood or cast iron. Wooden or cast iron benches or benches made partly of wood and partly of cast iron however have been far from satisfactory as it has been impossible to make them firm and strong enough to stand the strain of heavy drawing.

The frame of my improved bench is made entirely of wrought iron or steel, and while not excessively heavy is made very strong at just the places where strength is required. I have found in practice that it is strong and firm and abundantly able to stand the strain of heavy drawing. This result is accomplished by the special construction of framework which I will now describe referring by numbers and letters to the accompanying drawings forming part of this specification in which:

Figure 1 is a side elevation of my novel drawing bench and Fig. 2 a plan view, the bench being broken away at the center; Fig. 3 a cross section on an enlarged scale on the line  $xx$  in Fig. 1 looking toward the left; Fig. 4 a cross section on the same scale on the line  $yy$  in Fig. 1 looking toward the right; Fig. 5 a plan view of one of the right end castings detached, and Fig. 6 is a detail view illustrating another mode of connecting the bench proper to the end castings.

The bench proper of the machine consists

of two vertical side plates denoted by 1, and two transverse plates 2 lying between them. In practice I preferably use for plates 1 and 2 strips of ordinary channel iron that is to say plates consisting of webs  $a$ , having flanges  $b$ , at their edges on one side thereof. Plates 1 are made perfectly solid with plates 2 by means of rivets 3 which pass through the flanges of plates 2 and through the webs of plates 1, as clearly shown. These rivets are placed close enough together so as to make the bench proper of the machine as solid as if cast in a single piece.

The right end of the bench proper as seen in the drawings is supported by two corresponding castings denoted by A which are provided with grooves 21 to receive the lower flanges  $b$ , of side plates 1, the upper flanges  $b$ , of the side plates resting upon the top of the castings.

The bench proper is secured to the castings by heavy transverse bolts 4 which pass through the webs of plates 1, the flanges of the upper transverse plate 2 and through the castings, and by bolts 5 which pass through the thickest portions of the castings below the bench proper. The left end of the bench proper as seen in the drawings is supported by two heavy castings denoted by B which are braced and connected together by a casting C. Castings B and C are rigidly locked together by bolts 6.

The bench proper is rigidly secured to casting B by bolts 7 which pass through the flanges of plates 1 and through portions of the castings. The bench proper is furthermore rigidly secured to casting C by bolts 8 which pass through the webs of plates 1 and through the castings. It will be seen in Fig. 3 that the rear ends of the sides of castings C are provided with inwardly turned projections  $C'$  which lie between the flanges of plates 1 thereby supporting said plates firmly and giving the greatest possible strength and rigidity to that portion of the machine upon which the most strain comes in use.

9 denotes a recess in casting C which receives the die not shown.

The chain which is shown only in dotted lines runs over a heavy sprocket wheel 10 journaled in boxes 11 upon castings A. Power to



drive this sprocket wheel is applied in any suitable manner, no driving mechanism being shown as it forms no part of my present invention. The chain is of course endless, as usual in this class of machines, and passes over a wheel 12 journaled in boxes 13 in casting B. These boxes are adapted to be moved in either direction by means of adjusting screws 19 so as to enable the operator to move wheel 12 thereby increasing or decreasing the tension of the chain.

In use wheel 12 is so adjusted as to permit the lower side of the chain to hang loosely as shown in Fig. 1, and to slide on the floor or in a trough not shown. The upper side of the chain, *i. e.* the operative portion, rests upon the upper transverse plate 2, as is also clearly shown said plate forming a perfectly rigid support therefor. After wheel 12 has been adjusted the boxes are locked in place by plates 14 which are rigidly bolted to casting B.

15 denotes holes in vertical plates 1 which receive the ends of heavy cross rods 16. These rods are engaged by the eyes of eye bolts 17. At the right end of the machine these bolts pass through holes in heavy lugs 18 formed integral with castings A, see Figs. 1, 2 and 5. The forward ends of the eye bolts are engaged by nuts 20 which when tightened up draw castings A and the bench proper together tightly, after which bolts 4 and 5 are inserted and tightened up. The assembling is performed in the same manner at the left end of the machine the forward ends of the eye bolts passing through casting C, as is clearly shown at the left in Figs. 1 and 2.

In Fig. 6 I have illustrated a mode of connecting the bench proper to the castings in which bolts 16 and the eye bolts are dispensed with and the parts connected together by means of angle pieces 22 which are bolted to webs *a*, and to the castings. In this form the castings are provided with suitable recesses to receive the ends of the side plates as clearly shown. 23 denotes the slide or carriage by which the gripping jaws 24 are carried. This slide or carriage rests upon the top flanges of side plates 1. Rollers may or may not be placed upon the carriage. I preferably however use a simple slide in which in practice rests and slides upon the tops of the side plates, the upper portion of the chain resting as already stated upon the web of the upper transverse plate. In use the chain moves continually, and the slide is connected thereto in any suitable manner as by a hook, not shown. The carriage is provided with flanges 25 which engage the inner faces of the side plates and act to retain the carriage in position at all times.

Having thus described my invention, I claim—

1. In a drawing bench the combination with flanged vertical plates 1 and flanged transverse plates 2 firmly riveted thereto, of castings A, to which one end of plates 1 are riv-

eted, castings B to which the other end of plates 1 are riveted, and casting C by which castings B are braced and connected together. to which plates 1 are rigidly bolted.

2. The combination with vertical plates 1 having flanges *b*, and transverse plates 2 having similar flanges by which said plates are secured together, of castings A, to which one end of plates 1 are riveted, castings B to which the other end of plates 1 are riveted, and casting C by which castings B are braced and connected together. bolts securing plates 1 and their flanges to said castings and other bolts extending through said castings transversely of the machine.

3. The combination with flanged vertical plates 1 and flanged transverse plates 2, said plates 1 having holes 15, of castings A, to which one end of plates 1 are riveted, castings B to which the other end of plates 1 are riveted, and casting C by which castings B are braced and connected together, cross rods in holes 15, and eye bolts 17 engaging said cross rods and a solid portion of the framework at each end thereof.

4. The combination with flanged vertical plates 1 and flanged transverse plates 2 riveted together substantially as described, said plates 1 having holes 15, of castings A having lugs 18, a cross rod in holes 15, and eye bolts engaging the cross rods and passing through the lugs as and for the purpose set forth.

5. The combination with flanged vertical plates 1 and flanged transverse plates 2 riveted together substantially as shown, said plates 1 having holes 15, of castings A having lugs 18, bolts securing said castings together, bolts securing plates 1 to the castings, a cross rod lying in the holes, and eye bolts through which the cross rod passes and the forward ends of which engage lugs 18.

6. The combination with flanged vertical plates 1 and flanged transverse plates 2 riveted together, said plates 1 having holes 15, of castings B and C, bolts securing said castings together, other bolts securing plates 1 to said castings, a cross rod in holes 15, and eye bolts engaging said cross rod and casting C.

7. A drawing bench the frame of which consists of flanged vertical plates and flanged strengthening plates placed transversely between the vertical plates and riveted or bolted thereto, the drawing chain supported upon the upper transverse plate and the carriage supported upon the side flanges.

8. The combination with castings A having recesses 21 and lugs 18, of side plates 1 having flanges *b* at their opposite edges the lower flanges engaging recesses 21 and the upper flanges resting upon the castings, and transverse plates 2 having flanges riveted to plates 1.

9. The combination with castings A having recesses 21, lugs 18 and holes 15, of side plates 1 having flanges *b* at their opposite edges the lower flanges engaging recesses 21 and the upper flanges resting upon the castings, trans-



verse plates 2 having flanges riveted to plates 1, a cross rod 16 engaging the holes, and eye bolts engaging the cross rod and lugs 18.

10. The combination with castings A, of  
5 side plates 1 having flanges b at their opposite edges the upper flanges resting upon the castings, transverse plates 2 having flanges riveted to plates 1, suitable means for connecting plates 1 to the castings and a carriage

23 resting upon the tops of the side plates 10 and having flanges 25 which bear upon the inner faces of said side plates.

In testimony whereof I affix my signature in presence of two witnesses.

FERDINAND DEMING.

Witnesses:

CHAS. A. COTTER,  
ALICE DE LOWRY.